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## NOTES ON FALL-FLOWERING PLANTS OF THE CENTRAL MISSISSIPPI RIVER VALLEY

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FINDINGS in the genus *Aster* during my trip in the fall of 1927, across Illinois southward as far as the region about St. Louis, Mo., were given in the April, 1928 issue of RHODORA. The succeeding aster-flowering season—fall of 1928—found me on the way early and on a more extensive trip which carried me overstate and zig-zaging from one side of the great Mississippi River to the other as far south as the northern borders of the state by the same name and the adjoining state of Arkansas across the river on the west.

During the entire trip and over the whole season when asters were in flower, extending even beyond the time of frosts, unusual or new specimens were secured, ranges were observed, colorations noted and many field notes jotted down, the more interesting of which are here recorded. Plants of other genera in flower and fruit at the time also came under observation—and these were not slighted but scrutinized as well, furnishing additional material which is included in this paper as being of possible help in taxonomic work.

So, in *Gramineae* it was noted that in our northern range (northern Illinois) the species *Agrostis alba* L. was, in the main, of erect habit—scarcely decumbent. On proceeding southward the species was more and more tending to become stoloniferous and rooting at many nodes. Pastures were not considered but the species was sought out in woodlands or other uncultivated areas where it could have been more thoroughly naturalized. To illustrate this peculiarity, a specimen has been placed in Field Museum from Bloomfield, Johnson County, Ill., *Benke 4664*. Anomalous, in this connection, is this character

as observed in the species *Leersia oryzoides* (L.) Sw. (*Homalocenchrus oryzoides* (L.) Poll.) which is mostly decumbent in its habit in the Chicago region, while specimens seen down-state were very strict, as a rule. On file from the same locality as before, is *Benke 4669* which gives a fair sample of this species through that region. This item, probably, is more of ecological interest.

About Anna, Union County, Ill., were found specimens of *Aristida dichotoma* Michx. (*Benke 4692*), sparingly established in the hilly woodlands, which were very weak but tall; no other characters could be uncovered to warrant the separation of a variety or form from the species. A specimen similar to mine is in Field Museum Herbarium: ILLINOIS: barrens, Menard County, *E. Hall*, Museum no. 314281.

A sharp lookout was kept for *Arundinaria tecta* (Walt.) Muhl. as the journey proceeded southward, but no colonies of plants were observed until the streamlets of the Illinois Ozarks were reached in Johnson County—*Benke 4696*. When one first sees this plant—cane-brake, along with cypress, magnolia and live-oak species—he begins to feel that he has arrived in the “Southland” indeed. In Field Museum are also specimens of *Arundinaria* from farther north but in the Wabash River Valley. ILLINOIS: Richland County, *Ridgway 155; 263*; Mt. Carmel, Wabash County, *Patterson*, Museum no. 135116.

Specimens of *Froelichia* which conform to the characters of *F. gracilis* Moq.—a plant of the western plains—were seen about Cairo, Ill. (*Benke 4714*) and the tropical weed *Boerhaavia erecta* L. was found nearing its northern range-limit toward the Missouri-Illinois border. The specimen on file in Field Museum is from Hulbert, Arkansas (*Benke 4715*).

*Lespedeza striata* (Thunb.) H. & A. of the Illinois hill country, running wild beyond Bloomfield (some miles to the northeast) is not of the usual diffusely branched prostrate habit but quite erect and but little branched or nearly simple (*Benke 4876*).

A fine specimen of *Rhamnus cathartica* L. was found established in the virgin woodlands about Trout Park, north of Elgin, Ill. (*Benke 4742*) far removed from any cultivated area. From the same territory all specimens examined of *Psedera quinquefolia* (L.) Greene proved to be of the variety *hirsuta* (Donn) Rehder (*Benke 4743*).

It was interesting to observe the very showy *Passiflora incarnata* L. running perfectly wild and thoroughly established so far north as

the region about Metropolis, Massac County, Ill. (*Benke 4747*). Possibly it should be regarded as native to the region.

About Elgin, Ill. a number of specimens of *Sanicula* were studied. But they all proved to be *S. gregaria* Bicknell (*Benke 4754*).

The curious fact was noted that all plants of the species *Asclepias perennis* Walt. of the region about Cairo, Ill. had *very bright green* stems, quite striking even from a considerable distance (*Benke 4757*). Another curious sight arresting one's attention was observed along the lowlands of the Ohio River about Metropolis, Massac County, Ill. where Ipomaeas of several species—*I. coccinea* L., *I. lacunosa* L. and *I. purpurea* (L.) Lam.—red- white- and blue-flowering were intertwined and all blooming together, yet all distinct with no signs of hybridism apparent! Specimens were taken to be placed in the Field Museum Herbarium together with duplicates.

Several examples of exceeding thrift and vigor in plants under favorable conditions may be cited: in the rich bottoms of the Mississippi about Cairo, Ill. there were some great individuals of *Scutellaria lateriflora* L., bushes of nearly two meters in diameter and a meter in height! (*Benke 4774*). *Lobelia cardinalis* L. showed similar tendency to attain exceptional size about Horn Lake, Mississippi (*Benke 4788*). And *Boltonia asteroides* (L.) L'Hér. in some colonies about Niles (northwest of Chicago) forms regular "jungles," the plants running between two and three meters in height.

In the neighborhood of Trout Park, Elgin, Ill. the white-flowered form of *Solanum Dulcamara* L.—forma *albiflorum* House—as a rule seen only occasionally, occurs quite as frequently as the species with purple flowers, or even more so.

About Justice Park, Chicago, several colonies of *Aster Drummondii* Lindl. were found which were of lower stature than common and the stems, and leaves on their upper surfaces, were very rufescent but the separation of a variety or form on these characters alone does not seem justifiable unless study from season to season discloses that these differences are permanent (*Benke 4882*).

There was seen to the north of Elgin near Trout Park Preserve a considerable colony of Asters reminding one at a glance of the inflorescence of *Aster lateriflorus* (L.) Britton but of the leaf-characters of *Aster lucidulus* (Gray) Wiegand. By closer study these intermediate characters become quite apparent, strongly suggesting that the colony may be of hybrid origin, especially since the two species

mentioned grew in the closest proximity. Specimens were taken in duplicate (*Benke 4833*) but as the plants of the entire colony were unsound, the branchlets, smaller leaves and bracts, more especially, having been attacked, it appears, by a rust of some kind, a hybrid cannot now be announced and published, the colony requiring further observation for another year or longer. It may be a case for phytopathology rather than for taxonomy!

It is now in order to cite the apparently new material secured on the extended trip.

I. To the northeast of Memphis, Tennessee there was found a species of *Uniola* resembling *U. laxa* (L.) BSP. but at once striking for its lengthened nodding filiform culm, nearly simple inflorescence and single-flowered spikelets. On account of the latter, its most striking character, it may be called

***Uniola uniflora***, spec. nov., *U. laxam* simulans; culmis fragilioribus, supra cernuis, filiformibus; panicula spiciformi simplicissima vel remote pauciradiata, radiis brevissimis, 1- raro 2-spiculatis; spiculis 1- raro 2-floris; glumis 3-3.5 mm. longis aliquam hyalinis (praecipue palea) plerumque eroso-ciliatis.—TENNESSEE: Memphis, Sept. 19, 1928, *H. C. Benke 4874* (TYPE, Field Museum).

In its character as to roots, length of culms and width and length of leaves resembling *U. laxa* (L.) BSP. (*U. gracilis* Michx.) but differing by its weaker culms, nodding and filiform; inflorescence long and distantly spicate—a simple spike or at most one to several very short and distant branches (which bear one or two one-flowered spikelets); spikelets single-flowered, rarely two-flowered; florets with their glumes averaging conspicuously smaller, 3-3.5 mm. in length; the flowering glumes, and palea particularly, more delicately hyaline in texture, mostly erose or even erose-ciliate margined.

That the new species cannot be regarded as a weak development of *U. laxa* may readily be seen by comparing it with depauperate specimens of that species which run to stronger culms, definitely larger and multi-flowered (3-6) spikelets, even in the weakest plants as observed both in the field and in the herbarium. Both *U. laxa* (L.) BSP. and *U. longifolia* Scribn. are well-represented in the Field Museum Herbarium, many of the former under its synonym *U. gracilis* Michx., and one specimen entered as such is very typically the new species: VIRGINIA: Richmond, Sept. 26, 1894, *J. J. Carter*, Museum no. 218798.

On reaching the region about Horn Lake, Mississippi, some thirty miles further south, *U. uniflora* was not seen but *U. laxa* and *U. longifolia* were both met with in quantity, but in distinct colonies—best seen in the field—and none were found growing together. All the species, including the new one, were found growing at the edge of rich woods and pastures.

II. Along the streamlets of the Illinois Ozarks beyond Bloomfield and nearing Tunnel Hill in Johnson County a very striking form of *Oxalis* was encountered at several places—remarkable for its viscid-hairiness, on the stem actually woolly! This character was so pronounced that it was noticeable even at a distance, as soon as the plant appeared in sight. The attention was also arrested by the unusually small size of the flowers and their *deep yellow* color.

In the genus *Oxalis* or the Wood-sorrels, it is realized that great caution must be observed in separating varieties or even forms because of the many synonyms and the insecure, indefinite or merging characters. But since specimens in the herbarium of the Field Museum and literature at hand fail to uncover specimens similar to mine it seems necessary to name a new variety:

*OXALIS EUROPAEA* Jord., var. **lanulosa**, var. nov., caulibus petiolis pedicellisque dense pubescentibus cum pilis viscoso-lanosis; foliis supra plus minusve strigosis vel pilosis; petalis 3–5 mm. longis, intense luteis.—ILLINOIS: Bloomfield, Johnson County, Sept. 22, 1928, *H. C. Benke 4877* (TYPE, Field Museum).

Like the species in inflorescence, size-range of flowers, “stipules obsolete or nearly so,” etc.; but stem densely to loosely viscid-woolly; petioles, pedicels, sepals and capsules less so, at least strongly viscid-villous; leaves strigose-pilose on upper surface, some densely so; petals conspicuously small (flowers 3–5 mm. high), *deep yellow*.

Wiegand, in his recent very excellent and critical treatment of *O. corniculata* L. and its relatives, RHODORA 27: 136. 1925, separates the forma *vestita* Wiegand from the variety *Bushii* (Small) Wiegand of the species *europaea* Jord. This seems to be his nearest approach to my new variety. Two of the specimens which he cites are accessible in the Field Museum: ILLINOIS: La Salle County, *Greenman, Lansing & Dixon 144* and Riverdale, *Lansing 2625*. These two plants—of unlike branching habit—both differ from the new variety in the evidently larger petals (6–9 mm. long) very pale in color. This latter character, however, might have been somewhat modified by their preparation for the herbarium. They are pubescent to a

markedly less degree than any of my abundant material, secured from several colonies of the region and uniformly characterized by conspicuously long viscid spreading or tangled-woolly pubescence and small deep-yellow flowers.

III. Trout Park to the north of Elgin, Ill. is not a park in the usual sense, but rather a Preserve with its environs for a mile or so along the bluffy hillsides reaching to the valley of the Fox River, a bit of the original Illinois landscape with its wealth of flora now assured perpetuity by the city of Elgin, which has acquired a goodly portion and included it in its park system. But, unlike the other city parks, it is kept in its natural state as far as possible, having been placed in the custody of the various nature-conserving societies of the city. The region is most unique in that it contains innumerable springs and brooklets so that it is practically drought-proof and free from fire-danger. This makes it the home of age-old trees, among them grand specimens of ancient *Thuja occidentalis* L., White Cedar!

Among the profusion of wild asters that may be expected and which does flourish in such a place is one most conspicuous and beautiful, massed in colonies here and there about the park. Various persons have remarked to me about the abrupt transition in color from intensely blue to rose-red in a few of the colonies, in the same species, *Aster Shortii* Lindl. Having found no mention of this charming color-form, it pleases me to record it here as

ASTER SHORTII Lindl., forma **Gronemanni**, f. nov., ligulis roseis. Rays rose-red.—ILLINOIS: Elgin (north part), Kane County, Oct. 1, 1928, *Benke 4872* (TYPE, Field Museum).

This is named for CARL F. GRONEMANN of Elgin, an enthusiastic friend of the flora, President of the Illinois Nature Study Society, who took a leading part in the long campaign to save Trout Park Preserve and who first spoke to me about this attractive aster.

Since this color-form has not been seen elsewhere in my many travels it must be regarded as rare.

IV. *Aster Drummondii* Lindl. is a very common species in the vicinity of Chicago where it is well-marked, as a rule, so one encounters little trouble in its determination. We are used to seeing every shade of blue from very pale to the deeper shades and consequently, color-forms are not to be separated in the blue-rayed specimens. But when one comes upon such a rarity as this species with rose-colored rays and leaf-characters varying from the type

besides, a new variety of this ubiquitous (woodland, field and meadow) species should be separated.

ASTER DRUMMONDII Lindl., var. **rhodactis**, var. nov., strictior, paucè ramoso; ramulis numerosis axillaribus; ligulis roseis.—ILLINOIS: Chicago (Justice Park), Cook County, Oct. 5, 1928, *H. C. Benke 4830* (TYPE, Field Museum).

With the species but appearing rather taller because less branching; many leafy branchlets axillary; leaves smoothish on upper surface; rays rose-colored.

Type and duplicates were secured from several colonies growing in meadow-land to the west of the interurban station of Justice Park. They are very rufescent on stem and upper part of leaves but I should not maintain this to be an essential and constant character of this variety, with the limited observation given it. A specimen of the species with blue rays but with similar rufescence of stem and leaves has been referred to elsewhere in this paper.

V. Among other rarities in Trout Park Preserve and environs is found, in several small colonies, the white-flowered form of the charming *Aster lucidulus* (Gray) Wiegand, which has already been given a formal name but under a different species necessitating the following transfer:

ASTER LUCIDULUS (Gray) Wiegand, forma **albiflorus** (R. Hoffm.), comb. nov. *Aster puniceus* L., var. *lucidulus* Gray, forma *albiflorus* R. Hoffm. Proc. Boston Soc. Nat. Hist. **36**: 339. 1922.

As recorded by House, N. Y. State Mus. Bull. **254**: 703. 1923, white-rayed forms of *Aster puniceus* L., var. *firmus* (Nees) T. & G. have been collected in the state of New York at Hamlin by Beckwith, Pen Yan by S. H. Wright and at Lake Pleasant by Peck. These specimens have not been seen but it is strongly suspected that they may be of the same form as the above. The variety *firmus* of *A. puniceus* has never been satisfactorily separated by me for no specimen was ever encountered either in Wisconsin or in Illinois that would key to *A. puniceus* which was "smooth beneath and sparsely hirsute above" and also had "serrate leaves." All smooth-leaved asters of the group were always but *slightly* if at all denticulate and conformed well in all characters to the variety *lucidulus*, now raised to the rank of a species by Wiegand with the best of reasons, it seems to me, both from observation in the field and from examination of many herbarium specimens.

CHICAGO, ILLINOIS.